

REMARKS

In the Office Action¹, the Examiner took the following actions:

objected to the specification under 35 U.S.C. § 132(a);

rejected claims 9-12, 14, 15, and 26 under 35 U.S.C. § 112, first paragraph,

rejected claims 1-4 under 35 U.S.C. § 103(a) as being unpatentable over Gofuku (U.S. Patent No. 6,190,911); and

rejected claims 5, 7, 8, and 25 under 35 U.S.C. § 103(a) as being unpatentable over Gofuku and further in view of Arai et al. (U.S. Patent No. 4,504,323, "Arai").

Claims 6 and 13 were previously canceled; claims 1, 9, 25, and 26 are currently amended; claims 27-30 are added; and claims 16-24 stand withdrawn. Claims 1-5, 7-12, 14, 15, and 25-30 remain under examination.

Claims 1, 9, 25, and 26 are amended to improve their form and to even more clearly define the claimed subject matter. No new matter has been added. Claim 1 is amended to recite "implanting an electrically inactive first impurity over substantially one entire side of a semiconductor substrate, excluding a region below a gate electrode, to form an implanted layer on an upper portion of the gate electrode and a surface layer of the semiconductor substrate." Support for the amendments to claim 1 can be found in, for example, Fig. 1C of Applicant's specification, discussed at page 10, lines 12-19. Claims 9, 25, and 26 are amended in a manner similar to claim 1, and are similarly supported by Applicant's specification.

¹ The Final Office Action contains a number of statements reflecting characterizations of the related art and the claims. Regardless of whether any such statement is identified herein, Applicant declines to automatically subscribe to any statement or characterization in the Final Office Action.

Applicant has also added new claims 27-30, which depend from independent claims 1, 9, 25, and 26.

Regarding the Objection to the Specification

Applicant respectfully traverses the objection to the specification and the Examiner's contention that Applicant introduced new matter in an Amendment filed January 31, 2007. At pages 2-3 of the Final Office Action, the Examiner contends that Applicant's specification fails to support an element of claim 9. Specifically, the Examiner contends that Applicant's specification fails to support an "entirely implanting electrically inactive first impurity to the one main surface of the semiconductor substrate provided with the gate electrode, excluding a region below the gate electrode" (emphasis added). Id.

Applicant respectfully disagrees. In an exemplary embodiment illustrated in Fig. 1C of Applicant's specification, a first Ge implantation region 5 is formed in the upper portion of gate electrode 4 and on the surface layer of the silicon substrate 1. No implantation occurs, and no region 5 is formed, in the unnumbered region beneath "gate insulating film 3," as discussed at page 10, lines 12-19, of the specification. At least this exemplary embodiment supports the element of claim 9 that recites "implanting an electrically inactive first impurity over substantially one entire side of a semiconductor substrate, excluding a region below a gate electrode" (emphasis added).

The Examiner's objection is improper for at least this reason. Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the objection to Applicant's specification.

Regarding the Rejection under 35 U.S.C. § 112, first paragraph

Applicant respectfully traverses the rejection of claims 9-12, 14, 15, and 26 under 35 U.S.C. § 112, first paragraph. At pages 3-4 of the Final Office Action, the Examiner makes similar allegations as those discussed above regarding the objection to the specification and claim 9. For similar reasons as those discussed above, the rejection under 35 U.S.C. § 112, first paragraph, is improper. Independent claims 9 and 26 are supported by Applicant's specification and meet the requirements of 35 U.S.C. § 112, first paragraph. Independent claims 9 and 26 should therefore be allowable. Claims 10-12, 14, and 15 depend from independent claim 9 and meet the requirements of 35 U.S.C. § 112, first paragraph, for similar reasons as claim 9. Dependent claims 10-12, 14, and 15 should therefore also be allowable. Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claims 9-12, 14, 15, and 26 under 35 U.S.C. § 112, first paragraph.

Regarding the Rejection of Claims 1-4 under 35 U.S.C. § 103(a)

Applicant respectfully traverses the rejection of claims 1-4 under 35 U.S.C. § 103(a) as being unpatentable over Gofuku because no *prima facie* case of obviousness has been established.

To establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See M.P.E.P. § 2142, 8th Ed., Rev. 5 (August 2006). "[I]n formulating a rejection under 35 U.S.C. § 103(a) based upon a combination of prior art elements, it remains necessary to identify the reason why a person of ordinary skill in the art would have combined the prior art elements in the manner claimed." *USPTO Memorandum* from Margaret A.

Focarino, Deputy Commissioner for Patent Operations, May 3, 2007, page 2

[hereinafter *Memorandum*]. “[T]he analysis supporting a rejection ... should be made explicit” and it is “important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements in the manner claimed.” *Id.* (citing *KSR Int’l Co. v. Teleflex, Inc.*, No. 04-1350 (U.S. Apr. 30, 2007)).

Claim 1 recites “implanting an electrically inactive first impurity over substantially one entire side of a semiconductor substrate, excluding a region below a gate electrode, to form an implanted layer on an upper portion of the gate electrode and a surface layer of the semiconductor substrate.” Gofuku does not teach or suggest at least this element of claim 1.

Gofuku instead teaches “depositing a first layer of polycrystalline semiconductor over [an opening portion formed in an insulating film on a semiconductor region] . . . [and] injecting [] a first impurity . . . to convert at least a part of the polycrystalline semiconductor . . . into an amorphous layer.” Gofuku, claim 1, emphasis added. Gofuku’s teachings, however, do not constitute the above-quoted element of claim 1. Therefore, no *prima facie* case of obviousness has been established based on Gofuku because the reference fails to teach or suggest each and every element recited in claim 1.

In addition, at page 4 of the Final Office Action, the Examiner appears to take Official Notice in his assertion that “it would have been notoriously obvious to one of ordinary skill in the art at the time the invention was made to choose light (i.e. a lamp) as a heat treating means.” The Examiner does not cite a reference in support of his

contentions and does not provide a reason that would have prompted a person of ordinary skill in the art to modify Gofuku in the Examiner's proposed manner.

The burden is high for an Examiner to take Official Notice in a Final Office Action. See M.P.E.P. § 2144.03(A) ("these circumstances should be rare when an application is under final rejection"). In the present application, "Official notice unsupported by documentary evidence should only be taken by the examiner where the facts asserted to be well-known, or to be common knowledge in the art *are capable of instant and unquestionable demonstration as being well-known.*" M.P.E.P. § 2144.03(A) (emphasis added). Likewise,

[i]t would not be appropriate for the examiner to take official notice of facts without citing a prior art reference where the facts asserted to be well known are not capable of instant and unquestionable demonstration as being well-known. For example, assertions of technical facts in the areas of esoteric technology or specific knowledge of the prior art must always be supported by citation to some reference work recognized as standard in the pertinent art. M.P.E.P. § 2144.03(A) (emphasis in original).

Applicants respectfully challenge the Examiner's taking of Official Notice as improper, as it is unsupported by documentary evidence, and, based on the applied references and knowledge available to one of ordinary skill in the art, is not capable of instant and *unquestionable* demonstration as being well known. Applicants will therefore "specifically point out the supposed errors in the examiner's action, which would include stating why the noticed fact is not considered to be common knowledge or well-known in the art." M.P.E.P. § 2144.03(C). So, "[i]f applicant adequately traverses the examiner's assertion of official notice, the examiner *must provide documentary evidence in the next Office action if the rejection is to be maintained.*" *Id.* (emphasis in original).

Gofuku teaches that “since the grain diameter of polysilicon . . . is greater than the conventional, the diffusion of metal has been suppressed. The grain diameter of polysilicon is determined by the recrystallization of polysilicon which occurs with the heat treatment after the injection of impurities, although recrystallization into a large grain diameter is more likely to occur if polysilicon is more amorphous in the state before recrystallization.” Col. 4, lines 3-11 (emphasis added). The teachings of Gofuku, therefore, require a choice of a heat treatment based on the unconventional grain diameters taught by the reference. Accordingly, one of ordinary skill in the art could not merely substitute an allegedly art know equivalent process in order to maintain the suppression of metals, as also taught by Gofuku. The rejection under 35 U.S.C. § 103(a) is improper for this additional reason.

Therefore, no *prima facie* case of obviousness has been established with respect to claim 1 for the above discussed reasons. Claim 1 should therefore be allowable. Claims 2-4 depend from claim 1 and should also be allowable at least due to their dependence. Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claims 1-4 under 35 U.S.C. § 103(a).

Regarding the Rejection of Claims 5, 7, 8 and 25 under 35 U.S.C. § 103(a)

Applicant respectfully traverses the rejection of claims 5, 7, 8, and 25 under 35 U.S.C. § 103(a) as being unpatentable over Gofuku and further in view of Arai because no *prima facie* case of obviousness has been established based on the references. Claims 5, 7, and 8 depend from claim 1 and, accordingly, incorporate each and every element recited therein.

Gofuku fails to teach or suggest at least “implanting an electrically inactive first impurity over substantially one entire side of a semiconductor substrate,” as recited in claim 1 and required by claims 5, 7, and 8. Arai does not cure the deficiencies of Gofuku in that it instead discloses a “plurality of flash discharge lamps” for uniform annealing (Abstract). Moreover, the combination of these references also fails to teach or suggest “form[ing] an implanted layer on an upper portion of the gate electrode and the surface layer of the substrate,” also recited in claim 1, and required by claims 5, 7, and 8. Accordingly, no *prima facie* case of obviousness has been established based on Gofuku and Arai with respect to claims 5, 7, and 8. Claims 5, 7, and 8 should therefore be allowable.

Claim 25, although of different scope, recites similar elements as claim 1, and no *prima facie* case of obviousness has been established based on Gofuku and Arai with respect to claim 25 for similar reasons as those discussed above with respect to claim 1. Claim 25 should therefore also be allowable. Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claims 5, 7, 8, and 25 under 35 U.S.C. § 103(a).

Conclusion

New claims 27-30 depend from independent claim 1, 9, 25, or 26, and should be allowable at least due to their dependence. Accordingly, claims 1-5, 7-12, 14, 15, and 25-30 are in condition for allowance.

In view of the foregoing, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.


Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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